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# Civil Defense Plant Protection

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*Prepared by*  
PLANT PROTECTION SERVICE  
SAN FRANCISCO  
DISASTER COUNCIL AND CORPS  
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*Commander*

REAR ADMIRAL A. G. COOK, USN (RET.)  
*Director*



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REFERENCE BOOK

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THIS MANUAL on Plant Protection is offered to management by the Plant Protection Service of the San Francisco Disaster Council and Corps with a single purpose in view: that the suggestions and plans contained herein, may be adopted to whatever extent is deemed necessary in order to establish a sound workable protection program for all places where our people work.

HONORABLE ELMER E. ROBINSON, MAYOR  
*Commander*

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## PREFACE

Civil Defense is a necessary part of our life today because for the first time in history it is possible for an enemy to strike us in our homeland without first destroying our Armed Forces. His airplanes simply go over our defenses. Experience shows that in any bombing attack pressed home, the defense is lucky if it can stop a small percentage of the attackers.

We have one long-range advantage over our enemy: Production. We won two wars because of this factor. It is reasonable to assume that our enemy will make an all-out initial effort to overcome this advantage by attempting to destroy the community life with direct attack on population centers which support our key industries, thereby creating fear and panic. If we are prepared to take the proper protective measures, he will not succeed. No man can say when this attack is coming. It may be minutes, or years; but one thing is certain: We will need Civil Defense as long as we need Armed Forces.

Civil Defense is essentially self-protection for the individual, the family, the neighborhood, and the community.

Our Warden Service is designed to assist people in caring for themselves where they live. School Protection is designed to take care of our children in school, and Plant Protection is designed to take care of our people where they work.

Civil Defense has three objectives:

1. To save as many lives as possible.
2. To limit the damage inflicted by preventing secondary destructive forces from operating.
3. To restore normal community life as rapidly as possible.

In order to accomplish these it is necessary that all segments of our community train now so that if an attack should come they themselves will be able to survive and will be prepared to help their neighbors.

It is this pioneer spirit, a willingness and a competence to look out for yourself and your family and a desire to be prepared to help your neighbor should he need it, that has made our country great. It is absolutely essential that as individuals, social groups and working groups, we all return to this concept and do our part to preserve our community.



ELMER E. ROBINSON, *Mayor*  
*Commander, Disaster Council and Corps*

March 1952

## INTRODUCTION

The measures outlined in this pamphlet were compiled as a result of studies made of Federal, State and Municipal Civil Defense practices.

These recommendations are based upon present-day information and pertain particularly to San Francisco. With the advancement of atomic warfare, recommendations are subject to change.

Our enemies will attempt to interrupt the production and distribution of essential supplies. If they can do this in a relatively few critical areas they can overcome the one long-range advantage we have now and which was the deciding factor in our favor in the past two wars. The atom bomb is most effective when used against people. The enemy will attempt to destroy the community life of critical areas by an attack on people. If tremendous losses are inflicted, fear created, and panic spread, that community as an important element in National Defense will cease to exist. If we flee from critical areas we have accomplished for our enemy what he is trying to do with no expenditure of effort on his part. This is one of his most effective techniques—creating fear, panic, indecision, always followed by chaos. We must:

1. Reduce the loss of life.
2. Reduce the secondary damage effects.
3. Maintain normal community life.

These can be accomplished with very little expenditure of time, money, or material by careful planning.

A study of required Civil Defense activities indicates that the burden of operation must fall on the civilian population. Because of the magnitude and nature of the tasks, the work must be borne by the citizens of San Francisco working in their local areas. It can be performed most effectively by adhering to the existing framework as outlined by the Plant Protection Service of the San Francisco Disaster Council. This Service is charged with the duty of assisting management and owners in organizing and training personnel in all phases of self-protection at their plants.

One theory in strategic bombing is that the most opportune time to strike is when the greatest number of people would be exposed to bomb damage in congested areas. The greatest number of casualties could then be expected. A serious loss in skilled craftsmen and trained personnel would be a crippling blow to San Francisco's war effort.

In time of disaster, it is natural that personnel employed in stores and industry should feel concern for the welfare of home and family. However, no attempt to leave their plants should be made by personnel. The likelihood of getting far would be remote for various reasons.

In a major emergency, normal traffic and communication are warped. Everyone is more or less on his own. However much people at work may desire to be with their family, their first duty in immediate danger is to save themselves from injury. This must be done where they are at the time disaster strikes. Anyone who leaves a plant in a major disaster contributes to chaos. Debris, rubble, and other impediments to traffic; the need for free passage of fire engines and ambulances; the control by

police of all flow of traffic for the good of the community; the danger from fire and explosion—these and other factors make it of vital importance that people remain where they are until the crisis is past.

The home and family have their own protective measures. The Civil Defense Warden Service, backed by other divisions and services, has an effective program for residential areas. Children at school are under expert care. The Plant Protection Service of Civil Defense provides for the adoption of measures by industry to save the lives of workers in time of disaster.

The primary responsibility for establishing Plant Protection rests solely with management. The operating staff and their personnel are in a position to plan and effect measures for safe-guarding the plant. The brunt of carrying through the protection program will fall on the crews organized from the occupants. How well they function as trained teams will determine to a large extent how much life and property can be saved during an emergency.

## STEPS FOR ORGANIZATION

The San Francisco Disaster Council and Corps is equipped to render assistance in planning and effecting your program. You will find that the information and experience they have pooled from many sources can give you invaluable guidance. Moreover, if you tie in your program with theirs, standardizing your equipment in accordance with their recommendations and making joint plans, you will stand a much better chance in an emergency than if you operate alone.

1. You should make a survey of your plant to locate possible wartime hazards and take necessary action, now, to lessen or eliminate them.
2. You should appoint a responsible executive and give him necessary authority as directing head, with the title of Defense Coordinator, whose duty it will be to organize a central system of control and protective services.
3. You should have adequate protective equipment.
4. You should designate a central control room where command can operate in an emergency.
5. You should organize, train, and equip fire brigades and fire guards under direction of a plant fire chief.
6. You should have first-aid stations, shelters for personnel; also, provide rescue and welfare services.
7. You should protect your essential records, either through dispersal of duplicate copies or by protective construction.
8. You should train all personnel in self-protection.

The need for protection will vary according to the size, purpose, and location of your establishment. Whatever your requirements, the underlying principles of self-protection remain the same.

Your own plans need not be elaborate or your equipment extensive. We are giving you the complete organization.

If you do no more than get your employees in the safest part of your building the loss of life will be reduced by half.

### ORGANIZATIONAL PLAN:

#### AIR RAID WARNING AND FIRE ALARM

Your disaster program should be designed and based upon two separate plans covering: (A) Enemy Attack, (B) Fire.

1. An Alarm system should be provided. This system could be in the form of bell, gong, horn, whistle, or other suitable sound-off.
2. The warning signal device selected should be tested regularly and should be of a type that will be audible throughout the entire building.
  - a. One signal should indicate: AIR RAID WARNING—Upon the sounding of this signal, all occupants or employees not assigned to specific duties under your plan should evacuate to the designated shelter areas.



- b. The other signal should indicate: FIRE—Under this plan the fire-fighting teams go into action assisted by such other units as may be required by the magnitude of the emergency. If the Plant Defense Co-ordinator should deem it necessary, he may order the building evacuated by all persons not assigned specific duties in the plant defense plan. Whenever a fire occurs within your plant or premises, you should have the City Fire Department *notified immediately*; by sending two assigned runners to the nearest street fire alarm box, one to remain at the box to give the location to the first piece of apparatus to arrive; the other to return to the plant to report that the alarm has been sent.

Whenever an alarm is transmitted directly by telephone, dial UNDERhill 1-8020 and give the exact location of the fire by street and number to the operator.

## ORGANIZING FOR SELF-PROTECTION:

### *What Is Self-Protection?*

Self-protection as used here, is the concept of organizing and training small groups within a plant or other organization to perform specialized services, such as, policing or fire-fighting, to safeguard the plant and its occupants in time of disaster. You should be ever mindful that this program is not expected to replace normal protection. Its prime purpose is to allow you to expand your existing service in order that you may meet large scale disaster more effectively. It is suggested that you select personnel whose natural talents and past experience fit them for the specific tasks and give them the necessary authority to act.

## RESPONSIBILITY FOR SELF-PROTECTION:

The responsibility for planning and operating a self-protection program rests with management. Whether you are the president of a large industrial organization, head of a government office, the administrator of a hospital, the principal of a school, the owner of a neighborhood machine shop or store, you are responsible for developing a self-protection organization within your plant.

### 1. DUTIES OF THE PLANT DEFENSE CO-ORDINATOR:

- a. Plan a Plant Defense Unit for each separate building.
- b. Formation of a staff, as follows:
  - (1) Appoint a Deputy Plant Defense Co-ordinator to take charge in case of the absence or incapacity of the Plant Defense Co-ordinator.
  - (2) Appoint such other principal assistants as are necessary.
  - (3) Appoint sufficient Floor Wardens, Stair Wardens, Shelter Wardens, and such alternates and assistants as they may need.
  - (4) Appoint First-aid Teams.

- (5) Appoint a Maintenance Squad from the Plant Operating Personnel.
- (6) Appoint Fire Brigade, Fire Watchers, Rescue Squads and Messengers.
- (7) In business and commercial plant, in addition to the daytime organization, appoint Night Wardens and such other Plant Defense personnel as may be needed for the proper protection of the plant and its occupants outside of regular business hours.
- c. Set up in detail, the functions of each member or section of the organization and make those functions known to all personnel involved.
- d. As soon as the Plant Defense organization is established, arrange for its thorough training. The Disaster Council and Corps can provide opportunity for training.
- e. Set up a Control Room in a protected area from which the Plant Defense Unit may be directed.
- f. Set up an inter-communication or warning system to notify the occupants of the Plant in case of an emergency.
- g. Pick out the safest areas in the Plant to serve as shelters for the protection of the occupants of the Plant in case of an emergency.
- h. Establish First-Aid Stations.
- i. Prepare floor plans for each floor showing:
  - (1) Number of persons in each space and total on floor.
  - (2) Location of exits, shelter areas and first-aid stations and routes to same.
  - (3) Locations of Warden Posts, fire-fighting equipment, control valves, etc.
- j. Plan for the orderly movement of all occupants to shelter areas.
- k. Arrange for the control and security of mechanical devices, such as elevators, boilers, lighting facilities, steam and water shut-off valves, etc.
- l. Plan the shielding of vulnerable portions of the plant.
- m. Maintain liaison with local Warden Service.
- n. Direct operations of plant personnel and the Plant Defense organization during an emergency.
- o. When necessary, request outside assistance from Civil Defense Post Warden.
- p. Warn all members of the Unit to be on the alert to detect saboteurs; this warning should apply especially to Unit members in charge of areas open to the general public. Carefully protect communication, power, transportation and emergency facilities.

## 2. DUTIES OF DEPUTY PLANT DEFENSE CO-ORDINATOR:

- a. Assist the Plant Defense Co-ordinator in above duties.
- b. In absence or incapacity of the Plant Defense Co-ordinator, assume control of Unit.

## 3. DUTIES OF FLOOR WARDENS:

- a. Know the layout of his floor, all vital services thereon, and plans for evacuation.
- b. Know the number of persons in each room, office or space on that floor.
- c. Know location of shelter area, route thereto, and in emergency, direct all people on his (her) floor to that shelter.
- d. Provide for assistance of invalids, aged, sick, or other persons who might need special care.
- e. Be well instructed in panic control, be able to command respect of all in order to prevent panic during an emergency.
- f. After checking that all persons have left his floor for shelter areas, so advise Plant Control Room. Then take shelter where view is not restricted and assume duties as Warden and Fire Watcher.
- g. Be prepared to shut off vital services when necessary or when authorized by the Plant Defense Co-ordinator.
- h. In event of fire, take immediate action to extinguish same. If help is needed, notify Plant Control Room.
- i. Relay messages to and from the Plant Control Room.

## 4. DUTIES OF STAIR WARDENS:

- a. Stationed at various intervals along routes to shelters, on stairways, and at exits and entrances to be used.
- b. Keep people moving to shelters in orderly fashion.
- c. Relay messages to and from the Plant Control Room.
- d. Prevent persons from leaving Plant or going to places other than shelter areas.
- e. Be alert to observe actions tending toward hysteria or panic and make every effort to prevent and control same.
- f. Request assistance of floor Wardens, if necessary.
- g. After post is cleared, notify Floor Warden and take shelter.

## 5. QUALIFICATION AND DUTIES OF SHELTER WARDENS:

- a. Must be able to command the respect of others and maintain order in shelter area.
- b. Be able to provide some diversion for persons in shelter. (Community singing, games, etc.)
- c. Must be well instructed in panic control, observe any indication of nervous reaction, and take action to prevent panic.
- d. Summon assistance when necessary to remove a person suffering from hysteria or panic reaction.

6. QUALIFICATIONS AND DUTIES OF FIRST-AID TEAMS:
  - a. It is preferable to have a doctor or qualified first-aid instructor in charge.
  - b. Assistants should be trained in First-Aid.
  - c. These people will administer First-aid within the plant when and wherever necessary.
  - d. After administering First-Aid, arrange for movement of injured to shelter area if person does not need further treatment.
  - e. If other medical assistance is necessary, request it through Plant Control Room.
7. QUALIFICATIONS AND DUTIES OF RESCUE SQUAD:
  - a. Should be specifically trained for light rescue work in plant.
  - b. Will transfer injured persons to First-Aid Station according to proper first-aid transportation methods.
  - c. Will assist in transfer of ambulatory cases.
8. QUALIFICATIONS AND DUTIES OF FIRE BRIGADE:
  - a. Should be trained in fire-fighting and fire control.
  - b. Respond to locations of fires, and try to extinguish them, using plant fire appliances.
  - c. If unable quickly to control fire, request assistance through Plant Control Room.
  - d. Recruit additional members, if needed, through the Plant Control Room from the Fire Watchers, Wardens, and from personnel in shelters.
9. DUTIES OF FIRE WATCHERS:
  - a. Will be stationed in various locations throughout the Plant to watch for and detect promptly the start of any fires.
  - b. Should be trained in fire-fighting and fire control.
  - c. Report any fire immediately through the Floor Warden to Plant Control Room. Then take such emergency actions as he can to extinguish same.
  - d. Assist Fire Brigade upon arrival.
10. DUTIES OF MAINTENANCE SQUAD:
  - a. Will assist in the maintenance and control of emergency mechanical services such as elevators, lighting facilities, steam, water, etc.
  - b. Make emergency repairs to vital Plant services as needed.
  - c. In case of emergency, control the facilities described (d through k).
  - d. Keep the gas, light and water on, in the event of an Air Raid Alert. Several conferences with the utility companies and their executives inform us that the utilities should not be turned off at root valves. The Utility companies will shut off the mains to any damaged area.

One exception to this recommendation to leave the utilities on is, where there is a competent engineer on the premises, and he has personal knowledge of a breakage or rupture in any of the lines inside the building, he may turn off that particular utility.

In buildings equipped with automatic sprinkler systems valves on piping should not be closed, except upon direct orders from the control room or when directed to do so by the Plant Defense Coordinator. This must be handled by competent persons assigned to this specific duty.

- e. *Pacific Gas and Electric Steam Service*—DO NOT SHUT OFF MAIN VALVE, except in case of pipe break or other emergency.
- f. *High Pressure Boilers*—If steam is produced for pumps listed in section "G", or local generating plant, continue operation. Otherwise shut off automatic gas or oil burners.
- g. *Low Pressure Boilers*—SHUT DOWN all automatic burners.
- h. *Automatic Pumps*—Steam or electric, Sprinkler, Fire, House, Sump, etc.—LEAVE IN NORMAL OPERATION—but stand by for quick shut-off.
- i. *Pumps*—Boiler feed, Vacuum, and Return, *SHUT DOWN*.
- j. Other facilities—Leave in normal operation whenever possible.
- k. Shut down air conditioning system on Red Alert. Restart on All-Clear.

#### 11. DUTIES OF MESSENGERS:

- a. Assigned to Plant Control Room to carry messages in event of failure to communications system.
- b. Two runners stand by for fire alarm duties.
- c. May also be assigned to other stations where necessary throughout building in emergency.

#### 12. FULL TIME COVERAGE:

- a. It is recommended that arrangements be made so that emergency personnel is available on any floor during business hours. Lunch, sickness and vacation periods should be considered.

#### ORGANIZING YOUR PROTECTIVE SERVICES:

In general, your Civil Defense protective service should be organized and trained to:

- a. Direct occupants to shelter areas or fire exits.
- b. Prevent panic.
- c. Extinguish small fires before they spread.
- d. Rescue all trapped persons.
- e. Render prompt first-aid and hospitalize casualties where possible.
- f. Arrange for providing emergency food and temporary housing.
- g. Repair broken services, water, electric, and gas lines.

- h. Keep in touch with neighboring Civil Defense group and assist to the limit of your capacity after your own immediate needs are met.
- i. Maintain morale.
- j. Provide each member of your protective organization with identification or prescribed insignia to be carried at work at all drills or emergencies. The design should be of a type which is easily and quickly identifiable. Be prepared to assist other Plants in your area, should they be damaged and you are not.

## FIRE SERVICES:

During an attack or a large scale disaster, many calls may be made on the services of the San Francisco Fire Department. Even though you normally rely on your professional Fire Department, you should provide for an emergency fire fighting service within your own plant and organization. It is only reasonable to expect that streets and thoroughfares may be blocked with traffic or debris as the result of an air attack, or in the event that many simultaneous fires occur. Then your own fire brigade may prove to be your only source of protection against fire. All possibilities of damage from fire should be considered. Plan now to eliminate hazards wherever possible. Frequent inspections should be made to keep your building fire resistive and your emergency fire equipment in good operating condition.

### *Plant Fire Chief*

The responsibility for fire prevention and fire fighting should be placed in the hands of your Plant Fire Chief, a person selected from your organization by his general ability and past experience; one who is familiar with your particular operations, special hazards, and layout of your buildings.

He should recommend fire safety requirements, supervise inspections, hold drills and organize efficient teams of fire fighters. He should see that fire extinguishers, hose, hose reels, buckets, sand, and other fire-fighting equipment and materials are ready for use and that the type and quantity of such equipment conform to the recognized standard. He must make sure that exit doors are unlocked and that panic bars are workable. If dangerous fire conditions exist he must have authority to see that they are remedied.

The Plant Fire Chief should train alternates to assume fire duties in case those regularly assigned should be absent. He should see that the interior warning system is *frequently* tested to insure its operation.

### *Organization of Fire Services*

The size of your fire department should be based upon the size of the plant, the fire hazards to which it may be exposed, as well as the number of occupants or employees.

In small buildings with few occupants, the building superintendent, building engineer, and such personnel as may be assigned, would serve as the fire department. In larger plants, the fire department should consist of that number of fire brigades, inspectors, rescue units, and fire

guards which would give good protection to both plant and personnel.

The fire brigade is the mobile force and responds to all alarms within the plant or building in a manner similar to an organized city fire department. A fire brigade should consist of one (1) officer and four (4) subordinates capable of getting one or two hose streams into action, or suitable fire extinguishers, as the case may warrant.

### *Fire Guards*

The Fire Guards are under the direct supervision of the Plant Fire Chief. They are usually selected from the occupants of the various floors, and are trained in the use of the emergency fire-fighting appliances, such as the common type of either wheeled or hand fire-extinguishers. Fire Guards should be responsible for protecting an entire floor or designated area against small fires.

The Fire Guards' duties include:

- a. Making periodic inspections of their departments or designated areas, and reporting all fire hazards and dangerous conditions to the Department Head, as well as the Plant Fire Chief.
- b. In case of fire—notify the Plant Defense Co-ordinator or Plant Fire Chief at once.
- c. Take immediate steps to extinguish small fires in their areas, closing doors and windows in order to prevent the spread of fire.
- d. Give assistance to *fire brigades* as directed by the Plant Fire Chief.
- e. Plant fire inspection should include inspection of all fire equipment and appliances installed for use in or about the premises. Be careful to note condition of all fire hose and nozzles. Check also for stop-pages in nozzles, including those on hand extinguishers. In the case of soda and acid or foam types, these should be re-charged annually; check last date of recharge on attached card.

### *Handling and Use of First-Aid Fire Appliances*

In all properties, regardless of what other extinguishing equipment is provided, provision should be made for fighting small fires. In fact, the great majority of fires can be controlled by prompt attack with portable fire-extinguishers. Extinguishers do not take the place of major fire fighting equipment, nor does the provision of automatic sprinklers, hand hose or fire department protection materially change the need for hand equipment which enables small fires to be brought under control with a minimum amount of damage and loss of time.

In order that any type of extinguisher may be used effectively and for the purpose which it is designed, one first of all should understand that fires fall into three (3) standard types: "A," "B" or "C."

*Class "A"*—Fires in ordinary combustible materials, where the quenching and cooling effects of water, or solutions containing a large percentage of water, are of first importance, such as: papers, rags, wood, cotton or cellulose materials, and rubber.

*Class "B"*—Fires of inflammable liquids, greases, oils and similar compounds, where a blanketing or smothering effect is essential.

*Class "C"*—Fires in live electrical equipment, where for safety of the user, the use of a non-conducting extinguishing agent is of first importance.

| <i>On Class "A" fires use:</i>       | <i>On Class "B" fires use:</i> | <i>On Class "C" fires use:</i> |
|--------------------------------------|--------------------------------|--------------------------------|
| Soda—acid                            | Foam                           | Carbon Tetrachloride           |
| Water tank CO <sub>2</sub> cartridge | Carbon Dioxide                 | Carbon Dioxide                 |
| Water pump tank                      | Carbon Tetrachloride           | Dry Powder Extinguisher        |
| Garden hose line                     | Dry Chemical (DuGas)           |                                |
| Foam (has high water content)        | White sand—Soda Bicarb.        |                                |
| Interior hose lines                  |                                |                                |

The above classification is not held down to a hard and fast rule as conditions do arise where a small oil or grease fire may be extinguished by the intelligent use of a water type extinguisher, or a CO<sub>2</sub> extinguisher would extinguish a small amount of Class "A" materials if in a container.

The weights of the various types of extinguishers vary from 30 to 40 pounds fully charged.

### *Fire-fighting Information*

1. Never open the door of a room in which there is a fire until you feel the door.
2. If a door is hot to your touch:
  - a. Never open it until a working hose line is in place and charged with water.
  - b. Stand to one side and open door carefully and slowly, after charged line is at hand.
  - c. Accumulation of hot gases may cause a sudden outburst of flame (backdraft) when door is opened wide suddenly.
  - d. If water is not at hand, heat and smoke may force you to drop the line and retreat.
  - e. Direct the stream at the base of the flame where possible.
  - f. If a room is fully involved with fire, work the nozzle rapidly in all directions, covering the entire area; use ceiling as a deflector to get wider spread of water.
  - g. Always maintain an avenue of escape.
  - h. Shut off water as soon as all fire is extinguished.
  - i. Ventilate; open windows  $\frac{2}{3}$  from top, and  $\frac{1}{3}$  from bottom.
  - j. Extinguish smoldering debris by means of buckets of water or garden hose. DO NOT USE HEAVY HOSE LINE.

### GENERAL INFORMATION FOR FIRE DRILLS

The importance of thoroughly indoctrinating all your personnel in the hazards involved, and the safety factors to be considered in carrying out fire drills or evacuation to shelter areas can hardly be over-emphasized. It is unfortunate that fire and panic usually go hand in hand, and that close behind lurks disaster. Therefore, all persons should be impressed with the seriousness and importance of keeping all faculties alert while carrying out these fire drill exercises.



It is suggested that the following rules be observed:

1. Avoid all unnecessary conversation. This tends to be a distraction, and an accident may result.
2. Avoid carrying objects in hands. Hands should be free for ready support in event of mis-steps.
3. Women wearing high-heeled shoes or long garments are required to use particular care while descending stairs.  
**NOTE:** The suggested remedy for this problem is to have persons descend the stairs abreast, hands clasped together with the exception of the two outside persons, who each use one hand on the handrail for support.
4. Upon the sounding of the signal for evacuation or fire drills, persons should not tarry long in recovering personal items, garments, etc.
5. During these operations smoking should be prohibited.

### *Fire Drills*

Fire drills should be held at least once each month, at different hours of the day if feasible. However, some plants have found that less interference with their operations was experienced when the drills were held in the last working hour of the shift or day. All occupants, where practical, should participate simultaneously in drills. In large establishments it might best be handled by holding the drills in various parts of the Plant or Institution.

The Plant Defense Co-ordinator and his staff should proceed to the control room to direct operations as soon as the alarm sounds for fire drill. After the preliminary training period, the exact time for drills should come in the nature of a surprise.

Regulations governing the fire drill should be prepared by the Plant Fire Chief, or Deputy in charge of drills in large plants. The drills should include the simulated use of first-aid fire appliances.

### ASSIGNMENTS FOR FIRE DRILLS:

The duties assigned to employees or occupants during fire drills should not be confused with the duties of regularly assigned fire brigades and fire guards, although both brigades and fire guards participate in the drill.

**Searchers**—In time of emergency searchers should search washrooms, lockers, dressing rooms and all other portions of each floor. They should order all persons, except those authorized to remain, to safe shelter areas; or to leave the premises if conditions warrant. Ill or injured persons should be escorted or transported to the first-aid station, but if this is not possible, inform the floor Warden. Searchers should leave the floor immediately after the Wardens have directed all persons out of the building.

**Runners and Messengers**—Fire alarm box runners should know how to operate both public and plant fire alarm boxes and be familiar with their location. At least two (2) runners should be assigned to a specific street fire alarm box. In the event of a fire they should carry out the following procedure:

### *Reporting a Fire (procedure):*

- (a) The San Francisco Fire Department should always be notified immediately
    1. By sending in an alarm from the nearest auxiliary fire alarm alarm box. (If one is installed.)
    2. Sending two (2) runners to the nearest street fire alarm box to transmit an alarm.
- NOTE: (1) One runner to remain at the box until arrival of the fire apparatus, then guide apparatus to location of fire; the other to return and report to the official concerned, or the Plant Defense Coordinator, that alarm has been transmitted.
- (b) The telephone switchboard operator, in addition to the above, when notified, transmits the alarm by dialing the Fire Department number, UNDERhill 1-8020—giving address and *exact location* of the fire. This number should always be used when reporting a fire by telephone.

*Exit Guards*—The exit guards should take assigned stations at all doors leading to fire escapes, stairways, and other means of escape immediately upon the sounding of the evacuation alarm.

At least one guard should be stationed at each exit. He should keep exit doors open and direct the traffic in an orderly manner and prevent congestion. Exit guards should remain at their stations until informed by the searchers or officials of the control room that all persons have passed their stations. Then they should close their doors and leave the building or go to their designated shelter area, depending upon whether Plan "A" (Air Raid Alert) or Plan "B" (Fire) is in effect.

*Messengers*—Should be assigned to Building Control Room to carry messages in event of failure of the communication system. They may be also assigned to other stations, where necessary, for this purpose within the plant.

*Liaison with Local Fire Department and Civil Defense*—It is highly desirable that the Plant Fire Chief work in full co-operation with the local Fire Department. He should request the Department to inspect the property and make suggestions for fire prevention. If the plant has a classified contract with the Military or other defense agencies, the Plant Chief should consult with them regarding inspections in restricted areas and the advisability of utilizing local services.

Sometimes, where special chemicals or other hazardous processes may be employed, considerable damage or casualties may result from the use of water or other extinguishing agents. The Plant Chief should consult with local authorities having jurisdiction.

Entrances, corridors and aisles should be kept clear and in good order at all times in order that public apparatus may enter the plant without loss of time. Building guards and/or watchmen should be instructed in time of fire to open yard gates and main entrances, and to direct or guide the local apparatus to the fire.

You should keep in close touch with the fire services of your local Civil Defense Organization. They can assist you in working out plans for evacuation in case of conflagration or fire storms resulting from enemy attack, and for mutual assistance in fighting fires.

## WATER SUPPLY

San Francisco has one of the finest water supply systems for fire-fighting in the world. This consists of a low pressure system, a high pressure system, storage systems underground, means of obtaining water direct from reservoirs, and facilities for pumping salt water from the Ocean or Bay.

The high and low pressure systems are gridded so that if damage should occur, any section may be cut off.

You are urged to contact the Assistant Chief in your Fire Division or the Battalion Chief in your district and determine just what secondary water supplies are available to you, and how best you can use them. It is essential that plans be made ahead of time in order that there be no confusion or interference.

## POLICE SERVICES

European experience in World War II showed that it is possible to keep industrial output at a high level in wartime, despite severe enemy action. Although heavy bombing attacks sometimes disrupted production for a considerable length of time, factories were rarely completely knocked out. A shop might go, or even a whole building might seemingly be destroyed, but it was usually possible to resume operations within a period of weeks.

Recovery from a devastating enemy raid was not due to good luck, nor was it automatic. It was the result of months, and even years, of preparing plant and equipment for attack and in organizing and training personnel to deal with attack.

In the event of atomic attack or other major disaster each individual industrial plant, office building, public utility company, hospital, school, bank, warehouse, department store, home for the aged, hotel, church, and theater must depend upon its own resources for preservation. That is, in addition to its normal business practice, each plant must have an organized and effective program of self-protection, self-survival. Many such programs are in effect in San Francisco industry today. These programs serve a dual purpose. They provide for the security of plants against all hazards, and they safeguard information that might be of value to the enemy. They embrace physical protection of the plant; fire and accident prevention; protection against sabotage and espionage, which includes the control of employment of aliens, removal of potential subversives, investigation of employees (with special attention to those filling key positions), and fingerprinting of employees, protection of the plant against unlawful entry, control of visitors, control of restricted areas, and the protection of confidential and secret information and material. As the basic objective of a plant protection program is to prevent destruction, interruption, or delay in the production and delivery of munitions and other material essential to the prosecution of a war, the protection of plant personnel is the most important phase of the plan.

The San Francisco Police Department has a primary interest in the organization of your plant protection program; the establishment of security measures against espionage and sabotage, the prevention of panic and the maintenance of order prior to, during, and following an enemy attack, and the policing of your property subsequent to any major disaster. They are ready to help you.

The internal security of your plant is the basis of the productivity of our entire nation, and in consequence, the protection of our loved ones. Guard it well.

### (A) ESPIONAGE AND SABOTAGE

Internal security comprises security of information, prevention of sabotage and combatting subversive efforts.

By the Presidential Proclamation of July 24, 1950, "the Federal Bureau of Investigation of the Department of Justice should take charge of investigative work in matters relating to espionage, sabotage, subversive activities and related matters." If espionage is suspected, or if there is any suggestion of a compromise of classified military matter, the person

having knowledge of such situation should report it at once to the plant security officer. If there appears to be a sound basis for the statement, the incident should be reported immediately to the nearest field office of the Federal Bureau of Investigation for investigation, and also, if your plant has a contract with the Federal Government, to the representative of the Military Department having cognizance of the plant. In this respect, the Subversive Activities Detail of the San Francisco Police Department is in close alliance with the Federal Bureau of Investigation. *It is recommended that management make no attempt itself to make any detailed investigation of the matter.*

The California Sabotage Prevention Act of 1950, especially Sections 7 and 8 of the Act, pertaining to the posting of fences and arresting of trespassers, if taken advantage of by management, will do much to discourage saboteurs.

For information as to the various methods of espionage and acts of sabotage, and the security measures which may be taken by management to render espionage and sabotage ineffective at your plant, consult the Plant Protection Service's Police Representative.

## (B) PREVENTION OF PANIC

During an air raid alert, bombing, or any other major disaster, the prevention or control of panic and mass hysteria becomes an important police function. The plant police, in conjunction with the plant wardens, are responsible for maintaining order and discipline, for safeguarding people and property, and for directing traffic.

When disaster strikes, the initial problem facing police is traffic and crowd control. In a large plant the volume of traffic under normal conditions may be sufficient to create a problem. In an emergency, traffic can get out of hand, resulting in panic and the breakdown of protective operations. Entrances, traffic lanes, and roads must remain clear for free passage of fire equipment, ambulances, rescue trucks and other vehicles. Plant police must also control mass action.

During an attack it is the natural impulse to run away from the area of destruction. The instinct of self-preservation asserts itself strongly. But actually if everyone did this, panic, confusion, and congestion of streets and roads would follow. Panic can cause a greater loss of life than atomic radiation.

In the control of personnel, the floor, stair, and shelter wardens will assist the plant police in the movement of employees and visitors to shelter areas. This mass exodus must be accomplished without confusion or loss of time. There must be an inspection of floors, locker rooms and other areas, to see that everyone has evacuated to the shelter area.

Cool, level-headed persons should be appointed to the positions of plant police and wardens as they are charged with the responsibility of preventing panic. Even in the comparative safety of the shelter area, a power failure plunging the shelter into darkness, or the sound of a bomb exploding in the direction of a residential section of the city, may create panic. In this respect, plant personnel should be informed that an effective, organized body, the Civil Defense Warden Service, will care for their loved ones at home in time of disaster.

### (C) POLICING AFTER A DISASTER

Should our City or any community in the Bay Area be subjected to an enemy attack, the San Francisco Police Department will be called upon to perform special civil defense duties in addition to their regular activities of protecting the public and preserving order. There will be a major problem of traffic control, keeping routes into and through the City open for rescue vehicles. Details of officers will be sent to the scene of rescue operations, to medical installations, to welfare centers, to fire fighting operations, to registration centers, to the City Morgue and auxiliary Morgues, to the City Prison, County Jail and Psychopathic Wards. In the event of atomic, biological or chemical contamination, details will be sent to assist in monitoring and facilitating necessary evacuation.

*Details* will be sent to key points of entry to devastated areas to prevent ingress of unauthorized persons.

*Details* will patrol the confines of such areas, endeavoring to locate trapped and injured persons and to prevent looting.

*Details* will assist Coroner teams in identifying the dead.

*Details* will protect public utilities and industrial installations vital to the national interest.

*Details* will go to public reservoirs for the purpose of preventing sabotage.

Supply depots will be protected from looting.

Therefore, it is highly improbable that the regular police force or the auxiliary police force, themselves perhaps suffering many casualties as a result of the bombing, overburdened with special civil defense duties in addition to their regular duties, their progress hindered by debris-strewn streets, will be able to come to the assistance of each individual or private facility.

The plant police force will be called upon to protect the property of the company, left exposed as an aftermath of the attack. The normal peace-time security measures will be ineffective. Burglar alarm systems will be inoperative for lack of power. Windows will be shattered and premises several miles from the area of total destruction may be open to looting. Where the plant does not have a police force, certain trusted personnel should be designated to act as guards or watchmen, maintaining a 24-hour watch to protect the premises from burglary, looting and vandalism.

As glass windows will be shattered for a several-mile radius from ground zero in an atomic bombing, it is recommended that ground floor windows be measured for plywood shields. These should be stored on the premises. Following the attack, there may be a scarcity of glass for some time, and the installation of the plywood shields will be of great assistance in protecting the premises from looting and the elements.

### (D) WATCHMAN SERVICE

The watchman performs one of the most important functions in any establishment. During the shutdown periods, nights, holidays, or weekends, your plant is in his hands. In other words, the plant is in the hands of a watchman two-thirds of the time.

The plant, while in operation, is managed by highly skilled executives,

foremen, and employees. At the expiration of the work day, their responsibility vanishes and, too frequently, the plant is turned over to a watchman, unskilled and untrained, and many times uneducated, in the duties expected of him.

In the past, very little attention was paid to the ability or health of the watchman, other than that he remain awake and continually walk about the premises while on the job. However, after numerous cases of insufficient service, a system of checking—watching the watchman—had to be established. In order to do that, the procedure of punching clocks or boxes—a tell-tale as to the watchman's whereabouts at a certain time—was introduced.

The system was made so efficient as to time that the important duty of a watchman was to punch the clock at the proper hour. Today, in many plants, the watchman is kept so busy running from box to box that no time is left to watch the plant.

There are many good reasons why a watchman should leave his ordinary route. His alertness as to unusual happenings in or about the plant may take him from his usual routine for the purpose of making an investigation or inspection, necessitating a delay in punching the time clock. For instance, he may deviate to investigate a trespasser; to investigate the presence of the odor of smoke or fire in or about the plant; to check unusual happenings such as the opening or closing of doors or windows; to question loiterers about the plant yard; to investigate automobiles stopping at the plant; to shut off running water; to pull electric switches forgotten by employees, etc.

By investigating any of the above happenings, he shows that he has the interest of the plant in mind and that he is giving the service for which you are paying him. At no time should a watchman be permitted to develop the idea that his duties merely consist of making speedy trips from one box to another. However, any skipping of rounds or stations, or operating the stations in other than the predetermined order, or deviations from the correct time of punching which are too great or occur too often, should be satisfactorily explained by the watchman on the following day.

A watchman's rounds should be made at least once an hour, first round commencing at closing time, and never later than thirty (30) minutes after closing time, and the last round concluded during the hour before opening time. Watchman service should be continuous throughout Sundays and Holidays and all other times when the plant is not in operation.

The watchman should have approximately twenty (20) minutes rest period out of each hour; that is, the round may require forty (40) minutes.

The first two (2) rounds after closing should be made with particular care as this is the most hazardous period. Generally, any fire starting as the result of carelessness or accident in the daily working process of employees will be evident within that period of time.

Watchman stations should be so located and of sufficient number to require him to visit all portions of the plant with minimum amount of duplication.

Watchmen should be responsible persons, neither very young nor very old; with unimpaired eyesight, hearing and sense of smell; full use of both arms and both legs; a sound heart; reasonable physical strength and normal mentality. It is not always necessary that a watchman be armed. Should an armed guard be required by the plant, he should be provided a Special Policeman's uniform by management, and deputized as a Special Police Officer by the Chief of Police. He must also be instructed in the use of the revolver which he will carry while on the premises of the plant.

A watchman must be a man who not only sees but observes what he sees and remembers it. He is expected to recognize an emergency and act upon it in the right manner. He must be thoroughly equipped with a general knowledge of the entire plant; the machinery and electrical devices; the materials manufactured and stored in the plant; the correct operation of fire fighting equipment. He must be able to recognize fire hazards and have them removed, help to prevent theft and sabotage, and exercise all safeguards.

It must be impressed upon the watchman that he has the following obligations:

- (1) To his employer: To guard his employer's property at all times.
- (2) To his fellow employees: to see that his fellow employees remain employed, by returning their plant to them, intact, in the morning.
- (3) To the United States: to guard against the destruction of the plant, or any portion of the plant, or any of the materials, blue-prints, etc., stored within the plant, so that the national defense effort will not be impeded.

## WARDEN SERVICE:

Wardens under the direction of the Plant Defense Coordinator are primarily concerned with the safeguarding of life and property. If a fire or air attack occurs, Wardens must direct workers and occupants to safe areas. They also must assume leadership to prevent panic, render first-aid, and perform light rescue duties. They should fulfill these responsibilities first. If the gravity of the situation calls for aid to other services, they will help fight fires, clear away debris, and give other assistance where required. They are the custodians of life first, of property next. The warning signals used within the plant should be sufficiently distinct to indicate clearly whether the warden should lead occupants to a shelter area or outside.

### *The Plant Warden Chief*

A Warden Chief should be appointed to organize and train the warden service. The Warden Chief is responsible for obtaining and allocating warden equipment. He should keep a record of all staff members and regular occupants of the building. The record should include the person's home address, age, physical handicaps or condition, nearest of kin, and similar facts. Wardens should know which occupants require special care or help. At least one (1) elevator, if available, should be reserved for their use in event of evacuation.



The Chief Warden should have maps or prints of the plant showing all hazards, exits and shelter areas. He also should keep a record of vehicles which may be brought into service if conflagration or other disaster requires immediate evacuation of the area. Since plant wardens may be called on to assist other services, the Chief Warden should maintain close liaison with other plant chiefs, as well as with the district warden and other local defense authorities.

### *Organization of Warden Units*

Each plant or facility should be divided into zones, floors or departments for the establishment of warden posts. Warden service should be provided during all hours of operation on the basis of 8 to 20 wardens for every 1,000 occupants or workers, depending upon conditions. Additional wardens are necessary where groups are composed of children, old people, or the physically handicapped.

In large plants, "floor" or "building" wardens should be appointed and large observation posts established. If black-outs or dim-outs are ordered, special wardens may be needed to carry out official regulations.

### *Protection of Valuables*

The loss of records, blueprints, or special chemical formulas, or destruction of irreplaceable devices could cause a complete breakdown of operations in a plant or institution. Special wardens should be assigned to assure their protection or safe removal in event of enemy attack, fire or other disaster.

### *Wardens' Duties*

During periods prior to an emergency the warden's major duty is teaching; during the emergency, conducting people to safety; after the emergency, restoration of order.

*In the period before the emergency* the warden acts as the morale officer and civil defense teacher of the organization. He should know everyone in his area. He is responsible for acquainting each individual with warning signals and fire regulations. He should make certain that in an emergency each person knows where to go, how to get there, and what to do. He should be well educated in panic control; be able to command respect of all in order to prevent panic during an emergency.

*In the attack or emergency period* the warden directs people to shelter areas or fire exits and gives them other assistance. He should make sure that mass exodus is accomplished without confusion or loss of time. He searches all floors, locker rooms, and other areas to make certain that every person is out of the building. He should not rely on elevators for transportation to shelters because they may be rendered out of service by: power failures; blasts, causing mis-alignment of the elevator shaft; or other causes. If operating, elevators should be used first for children; secondly for old people or handicapped persons. He should be prepared to shut off vital services when necessary, or when ordered to do so from the control room.

*Immediately after an emergency* the warden should render first-aid in cases of shock, gas poisoning, burns, or other injuries and assist in light

rescue work. He should take a roll call of all persons in his area to account for their condition or whereabouts. If any person is missing or requires nursing care, or medical attention, that fact should be reported at once to the control room. As soon as it is possible to do so, the warden should make a survey to look for incipient fires, incendiaries, unexploded ordnance, the disruption of utilities, or other damage; *he should report his findings to the control room.*

The sooner the Plant Defense Coordinator is informed of dangerous incidents, the sooner he can dispatch help and equipment where needed, sound alarms, and give appropriate orders. The warden also takes part in "mop-up" operations. He helps to decontaminate the premises together with its equipment and materials, and takes all other steps to restore order.

*The Warden's secondary duties are:*

- (a) Assisting the police services in directing traffic, parking emergency vehicles, etc., preventing looting or trespassing by unauthorized persons, and keeping people away from hazardous areas.
- (b) Assisting the fire services in suppressing small fires, and in disposing of incendiary bombs.
- (c) Assisting the engineering services in decontamination of equipment or buildings.
- (d) Assisting the Welfare and other protective services as needed.

## WARDEN EQUIPMENT

To contend with emergency conditions, such as power failures at night, panic, and similar situations, wardens should be equipped with safety helmets, whistles, gloves, notebooks and pencils, large flashlights and extra batteries, first-aid kits, and gas masks. In addition, shovels, boots, crowbars, axes, and fire hooks should be conveniently placed throughout the building for the use of the warden and other services.

### HEALTH SERVICES

*The Health Services*—may have to operate against great odds. Even under normal conditions the scarcity of professional people in the health field is a severe problem. As doctors, dentists, and nurses are drawn from civilian work into the Armed Forces, the supply will dwindle. Yet, the need for their services will increase. Men and women who can serve as first-aid workers and nurses' aides should be recruited and trained as replacements. The mass of casualties that might occur after enemy action could reduce the nation's working and fighting potential to a dangerously low level unless institutions and plants organize their own health services and integrate them with local civil defense organizations.

### FIRST-AID

The local chapter of the American Red Cross is carrying out a very aggressive first-aid trainee program for Civil Defense. It is suggested that plant management take advantage of this, as the overall need for a strong first-aid program cannot be over-estimated, not only for the plant but the

home as well. The American Red Cross has a readied program to provide First-Aid Training and Health Protection in the event of emergency.

*Steps for Organizing Your First-Aid Program*

1. Appoint Liaison First-Aid or Health Director to:
  - (a) Coordinate First-Aid classes
  - (b) Select First-Aid station area (near plant Control Center is desirable)
  - (c) Assemble First-Aid supplies
2. Training Program for Basic First-Aid
  - (a) Instruction is provided by American Red Cross
  - (b) Basic Course requires 22 hours of instruction
  - (c) Desirable number in class, approximately 20
  - (d) Suggest evening classes where possible as available daytime instructors are few
  - (e) Time required: 11 classes, each of 2 hours' duration
  - (f) Location—your plant. Plants may coordinate classes with neighboring plants of their choice
3. Training Program—Instructor Training
  - (a) Employee instructors trained by Red Cross
  - (b) Instructor course requires 15 hours of instruction. Prerequisite: possession of standard and advanced First-Aid Certificates.
  - (c) Minimum number instructors in each plant: not less than 1 for each 100 employees
  - (d) Qualifications: must be capable, forceful and intelligent. Some teaching or public speaking experience is of definite value
  - (e) Reasons: to train remaining employees
4. First-Aid and Rescue Detachment. Prerequisites: at least one First-Aid Instructor and from 15 to 50 trained First-Aiders

Be Prepared: First-Aid Training is a prime factor in self-protection and survival. The Red Cross will help plan your program. *For further information call:*

FIRST AID DEPARTMENT—AMERICAN RED CROSS  
1625 Van Ness Avenue, San Francisco  
Phone: PROspect 6-1500

RECOMMENDED FIRST-AID KIT PER TWENTY-FIVE (25) PEOPLE TO BE INCREASED PROPORTIONATELY FOR LARGER NUMBERS, AS APPROVED BY THE MEDICAL DIVISION OF THE DISASTER COUNCIL AND CORPS.

(NOTE: The following supersedes former recommendations on First-Aid Kits)

1. 1 Package Adhesive Bandages (100's)
2. 3 Packages Sterile Roller Gauze (5 yards per package)
3. 8 - 40" Triangular Bandages
4. 4 Packages 3" x 3" Plain Gauze Pads (12 per package)
5. 10 Rolls 2" Roller Bandages
6. 3 Rolls 1" Water-proof Adhesive Tape (5 yards per roll)
7. 100 Paper Drinking Cups
8. 30 Tongue Blades
9. 30 Safety Pins—assorted sizes
10. 1 Tourniquet, rubber
11. 12 Splints (6 arm, 6 leg)
12. Sheet Wadding (6 sheets)
13. 2 Packages Razor Blades
14. 1 Bottle Mercurial Antiseptic Solution (8 ounces)
15. 1 Jar Solid Petrolatum (1 pound)
16. 1 Bottle (eye-drop stopper) Castor Oil (2 ounces)
17. 2 Packages Bicarbonate of Soda (1 pound per package)
18. 500 Aspirin Tablets, Gr. V
19. 8 oz. Aromatic Spirits of Ammonia, plus 1 doz. Ampoules
20. 8 oz. Alcohol, 50%
21. Cotton (one pound)

The following non-expendable items need not be increased, proportionately for larger numbers of people.

22. 1 Tweezers
23. 1 Scissors, preferably Bandage.

The following item is optional:

24. 100 Cotton-tipped Applicators

## FOOD

The American Women's Voluntary Services has a program entitled "Food Until Help Comes." They have recommended a list of food to be kept in a single package by each individual employee. It is compact enough to be stored in an office desk or locker, and is made up of the following items:

“FOOD UNTIL HELP COMES”—(Fits in a shoe box)

Medium size can unsweetened grapefruit juice

Small can pork and beans

Small can spaghetti and meat balls

Package *processed* cheese

Small package crackers

Small package tea

Roll malted milk tablets

Tropical chocolate bar

3 heavy paper cups

Package wooden spoons

Can opener

Paper napkins (several)

(These foods will not deteriorate in a two-year period)

## GENERAL INFORMATION

The Self-Protection Program outlined in the preceding pages can be effective if management and employees combine to make it so.

Each establishment will have its own particular problems and variations. The principal objectives are outlined in the preface:

1. The saving of lives
2. The restricting of damage
3. The restoration of normal activity must govern in all planning and operations

Many of our structures are far from ideal. However, if we do the best we can, and all take shelter in the best immediately available shelter, we will save a tremendous number of lives, whenever an emergency occurs.

The San Francisco Disaster Council and Corps can make available to you training in all the required elements of an adequate Plant Protection Program. Call in person at Room 212, 45 Hyde Street or telephone Underhill 3-6140.

*Shelter Area:* Recommended items for a Shelter area within a plant are:

- (1) Auxiliary Lighting
- (2) Blankets
- (3) Toilet Facilities
- (4) Battery Operated Radio
- (5) Telephone

These will add tremendously to the value of a shelter. Make them simple: a lantern or candles are better than no light. The important thing is *To Get People Into The Best Shelter Immediately Available*, even though none of these items are provided.

A shelter area is the best place to have a First-Aid Station and Plant Control Center. The Control Center, in addition to the recommendations for the general shelter area, should have the building plans and lists of all personnel employed in the building.

When plans have been completed and Plant Protection personnel selected, all information pertinent to the preparations for emergency should be set down in written or printed form. We recommend a small brochure, containing assignments of personnel, shelter area, routes to be taken by various offices and departments to the shelter area, and complete instructions as to the following:

- (1) "Air Attack Without Warning" (these are simple and will be found in the handbook "Survival Under Atomic Attack").
- (2) "Air Attack With Warning" and
- (3) "Fire."

These brochures should be distributed to all employees, with special attention being paid to new personnel. Similar instructions should be posted throughout your premises to assist any visitors at the time of an alert.

## GENERAL RECOMMENDATIONS

(a) GLASS—It must be remembered that glass is a very dangerous article during any bombing. A building may be located several miles from ground zero, and the occupants may escape the effects of the radioactivity and the heat given off by the explosion, as well as any severe blast damage. But, even at a distance, glass windows may be shattered.

Therefore, it is recommended that where there are glass windows and partitions, which are equipped with venetian blinds or heavy drapes, the blinds and drapes should be lowered or drawn so that they may deflect the glass and prevent it from flying throughout the room.

The Plant Protection Service recommends that you keep your venetian blinds down at all times. Air and light may be gained through adjustment of the blinds. Should an "Air Attack Without Warning" be received, this precaution would further serve to minimize the number of casualties from flying glass.

Employees should be cautioned to stay out of a direct line with the windows during an alert.

(b) WOOD—It should be noted that wood splinters are equally as hazardous as flying glass. Wounds inflicted by glass and wood splinters are extremely susceptible to post-injury infection. The medical supplies on hand in a particular plant will dwindle rapidly with a great number of casualties suffering from arterial bleeding; and an atomic attack against our City would cause a disaster of such great magnitude that it may be many hours, even days, before professional medical assistance will arrive.

It may be impractical to avoid glass and areas of wooden construction in the everyday business activities of your personnel within the plant. However, in selecting your shelter areas, you should endeavor to avoid both glass and wooden construction if possible.

(c) UTILITIES—See Section 10, page 10, "Duties of Maintenance Squad."

(d) ELEVATORS—In both "Plan A" (Air Raid Alert) and "Plan B" (Fire), we recommend that the elevator operators be instructed to bring the elevators to the ground floor. If in time of disaster it is possible for the local Fire Department to respond to a fire on your premises, they would be able to utilize the elevators to take their heavy equipment to other floors.

The Plant Protection Service does *not* recommend that the elevators be used to bring persons to the ground floor in either program. An atomic explosion may cause a power failure or a distortion of the elevator shaft, entrapping the occupants.

It must be emphasized that these recommendations are flexible enough to allow usage of the elevators to bring the incapacitated, aged, sightless, or injured to the ground floor. With this in mind, one elevator operator should be assigned to this task.

(e) VAULTS—If your plant is equipped with walk-in vaults, it should be brought to the attention of personnel working in the close

proximity of these vaults, that your shelter area affords suitable refuge. We do *NOT* recommend the usage of the walk-in type vault for shelter. An atomic explosion creates a blast effect, and may cause winds of such force as to swing the door shut, distort the door frame, and trap the occupants.

A distinction should be made between the above-mentioned walk-in type vault, commonly used for record storage, and the bank vault. The bank vault is of heavier construction, and the door is of such weight that the force necessary to swing it shut would very likely cause a collapse of part of the building. Many of these vaults are equipped with escape hatches and forced ventilation devices. The vault doors are often padlocked open. Where there is such a vault in a building, and another shelter area is not available, a bank-type vault may be utilized as shelter. Before selecting such a vault as a place of refuge, management should consider every other possible area within the building.













